

REMARKS/ARGUMENTS

The amendment to Claim 1 is supported at specification page 5, lines 26-27. Support for new Claim 5 is found at page 5, lines 8-13. Support for new Claim 6 is found at page 4, lines 8-17. Support for new Claim 7 is found in the paragraph bridging pages 4-5. Support for new Claim 8 is found at page 6, lines 2-16. New Claims 9-14 are supported by Claims 1, 5 and 8. No new matter has been entered.

The rejection over Nagao is traversed.

The spring steel of the present invention, as amended, contains 0.01% or less Al. As noted at the bottom of specification page 5, this low Al content suppresses the number of oxides such as Al_2O_3 , which become initiation points of fracture leading to deterioration in the fatigue property of the spring steel. That is, the property of the presently claimed spring steel not only depends on its chemical composition but also depends on the number of inclusions in the steel. The high tensile strength and high toughness steel of Nagao contains more than 50/2300 (particles/ μm^2), preferably more than 100/2300 (particles/ μm^2), of undissolved carbide which generates multi-orientated martensite in order to maintain its high toughness ([0025]). Thus, the steel of Nagao *relies* upon the presence of many inclusions, which suppress the growth of the martensite sub-structure, dispersed in the steel to maintain its toughness ([0008]). Nagao neither discloses nor remotely suggests suppressing the number of inclusions in the disclosed steel, and in fact such would be contrary to the purpose of the reference. As such, the reference does not disclose or suggest the present invention.

While examples No. 5, 6, 7, 10, 12, 14, 15, 18, 19 and 20 in Nagao satisfy formula (1) of the present invention (i.e., $0.8x[\text{Si}]+[\text{Cr}] \geq 2.6$), the content of C in example Nos. 6, 18, 19 and 20 is outside the range of the present invention, the content of Si in example Nos. 5, 10, 12 and 15 is outside the range of the present invention, and the content of S in example No. 7 is outside the range of the present invention. Moreover, the addition of 0.1% or less Al in the

Application No. 10/550,019
Reply to Office Action of November 2, 2007

steel of Nagao is only for deoxidation of the molten steel ([0015]). Therefore, overall a larger content of A1 is suggested for use in the steel of Nagao.

Furthermore, in Nagao the content of Cr is less than 3.0% and less than $2.5x[\text{Mn}]$. When the content of Cr is more than $2.5x[\text{Mn}]$, the steel loses its toughness even when the steel contains more than $50/2300$ (particles/ μm^2) of undissolved carbide ([0012]). In contrast, the steel of the present invention shows high sag resistance and fatigue property even when the content of Cr is more than $2.5x[\text{Mn}]$ (see examples 3, 9 and 10 in Table 1 at specification page 9).

Therefore, the present invention spring steel is different from and patentable over the steel of Nagao, and the rejection should be withdrawn.

With regard to the double patenting rejection, Applicants submit that the claims in this application are patentably distinct from those in the copending application. However, should a Terminal Disclaimer be required to place this application in condition for allowance the Examiner is requested to contact the below-signed representative, who will expedite the issuance of this case.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Richard L. Treanor
Attorney of Record
Registration No. 36,379

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)